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FlashReport

The double-edge of similarity and difference mindsets: What comparison mindsets do depends on whether self or group representations are focal

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HIGHLIGHTS

- ▶ Person perception often involves comparing individual targets to reference points.
- ▶ Past work argues that difference versus similarity focus yields less stereotyping.
- ▶ We suggest this could reverse if self, rather than group, representations are focal.
- ▶ In two studies, we manipulate comparison mindset and activated representation.
- ▶ We find an interaction: impact of comparison mindset depends on focal representation.

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ABSTRACT

Past work has argued that comparison mindsets affect stereotyping: perceivers in a difference mindset stereotype less than those in a similarity mindset, contrasting their judgments of an individual away from their representation of the group. Here, we argue that the self can also act as a reference point, implying that the impact of comparison mindsets depends on what is focal. In two studies manipulating comparison mindsets and activated representations, we find support for our claims that a difference (compared to similarity) mindset leads to less stereotyping and greater social projection when group representations are focal but to more stereotyping and less projection when self representations are focal.

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Introduction

Person perception most often involves some act of comparison, of relating an individual target to some point of reference (e.g., [Mussweiler, 2003](#)). A long tradition of work has shown that perceivers often use stereotypes as a point of reference when judging people, ascribing the qualities of a group to an individual member. Recently, [Corcoran, Hundhammer, and Mussweiler \(2009\)](#) found that the impact of stereotypes may hinge on the perceiver's underlying comparison mindset. Those in a *similarity mindset* may focus on similarities between the member and group, assimilating them and stereotyping more heavily, whereas those in a *difference mindset* may focus on dissimilarities, contrasting them and showing less stereotyping. The authors concluded that comparison mindsets, which can be subtly manipulated (e.g., [Mussweiler, 2001](#)), might be a "tool" for mitigating stereotyping and prejudice.

We believe this account is part, but not all, of the story. Another major reference point in person perception deserves consideration: the self (e.g., [Krueger, 2000](#); [Otten & Eptstude, 2006](#)). Just as perceivers often see others in comparison to stereotypes, they also often see others through reference to themselves, engaging in social projection whereby they assume that a target person shares their own attitudes and attributes. Indeed, people may shift between groups and the self as sources for social inference with stereotyping and social projection sometimes displacing each other (e.g., [Ames, 2004](#)). Incorporating this second reference point for social judgments—not just the group but the self as well—leads to a more complex and complete view of what comparison mindsets might do. When group representations are activated and focal, difference (compared to similarity) mindsets might not only lead to reduced stereotyping, as [Corcoran and colleagues](#) found, but also to heightened social projection. However, when self representations are activated and focal, the entire pattern could reverse with difference mindsets leading to increased stereotyping and reduced projection.

We tested these ideas in two studies, manipulating not only comparison mindset (difference versus similarity) but also activated

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representation (self versus group). If our results support our predictions, they would shed new light on the operation and impact of comparison mindsets (cf *Mussweiler, 2003*), portraying them not just as simple tools, but double-edged swords, capable of heightening as well as mitigating stereotyping and projection depending on what representations are focal.

Study 1

Method

Ninety-four female Columbia University (non-law) graduate students (average age 25.49, $SD = 3.29$) took part in a paid study that was a 2 (self-representation-activated versus group-representation-activated) \times 2 (similarity versus difference mindset) between-participant design. Participants first reported self preferences and estimated outgroup (Columbia law students) preferences on 18 items. The outgroup was chosen based on pilot testing that revealed a shared, though not necessarily accurate, stereotype of law students as serious and relatively conservative. Order of presentation (self, outgroup) was randomized. Based on piloting, six of the items were consistent with the shared stereotype (e.g., preferring to watch the news to a TV comedy show), six were inconsistent (e.g., preferring reading fiction to autobiographies), and six were unrelated to the shared stereotype (e.g., preferring autumn to spring). Responses were captured on a five-point scale adapted for each item (e.g., “Strong preference for watching news” to “Strong preference for watching comedy shows”).

After a filler task, participants were randomly assigned to either a self or group representation activation condition by writing about a typical day:

... think about a typical day in your [a Columbia law student's] life. Think about what type of clothes you usually wear [he/she usually wears], what food you eat [he/she eats], the people you interact [he/she interacts] with and what you do [he/she does] on a typical day. Describe below in a paragraph a typical day in your life [the life of a Columbia law student].

Participants then received sketches of two scenes depicting urban squares in the 19th century, following the comparison mindset manipulation used by *Corcoran et al. (2009)* and *Mussweiler (2001)*. Those randomly assigned to the difference mindset condition were asked to list ten ways in which the scenes differed; those in the similarity condition listed ten ways in which the scenes were similar.

Lastly, participants judged a female target, Janet, identified as a Columbia law student. Participants read a description of Janet based on past work on the Barnum Effect (*Forer, 1949*). Our goal in the description was to appear to provide information while actually painting an ambiguous picture of Janet that was neither consistent nor inconsistent with the general stereotype (e.g., “Janet wants people to like and admire her. Sometimes she is social and affectionate, while other times she is shy and reserved. ... Some of her teachers think she is too outspoken, while others think she is too inhibited. One of her major goals in life is stability”). Participants then rated Janet's preferences on the 18 items noted above.

Results

Because ratings of group preferences and self preferences were nested within participants, we employed multilevel modeling. Estimated target preferences were our dependent measures predicted by self ratings and group ratings at level-1. Self-versus-group representation activation and similarity-versus-difference mindset were used as moderator variables at level-2.

Our hypothesis was that the variation of the level-1 slopes (i.e., following *Ames (2004)*, the relation between self and target ratings as a measure of projection and the relation between group and target

ratings as a measure of stereotyping, which in this case reflected the participant's idiosyncratic beliefs about the group, not necessarily a shared stereotype) would be moderated by our level-2 variables. Our models were as follows:

Level-1 model:

$$\text{Target}_{ij} = \pi_{0i} + \pi_{1i}\text{Self} + \pi_{2i}\text{Group} + \varepsilon_{ij}$$

Level-2 model:

$$\begin{aligned} \pi_{0i} &= \beta_{00} + \beta_{01}\text{Activation} + \beta_{02}\text{Mindset} + u_{0i} \\ \pi_{1i} &= \beta_{10} + \beta_{11}\text{Activation} + \beta_{12}\text{Mindset} + \beta_{13}\text{Activation} * \text{Mindset} + u_{1i} \\ \pi_{2i} &= \beta_{20} + \beta_{21}\text{Activation} + \beta_{22}\text{Mindset} + \beta_{23}\text{Activation} * \text{Mindset} + u_{2i} \end{aligned}$$

with $\pi_{0i}, \beta_{00}, \beta_{10}, \beta_{20}$, as intercepts; $\pi_{1i}, \pi_{2i}, \beta_{01}, \beta_{02}, \beta_{11}, \beta_{12}, \beta_{13}, \beta_{21}, \beta_{22}, \beta_{23}$ as slopes; and $\varepsilon_{ij}, u_{0i}, u_{1i}, u_{2i}$, as residuals. Target_{ij} is the response variable of individual i measured for the preference j . Activation was coded -1 for group representation and $+1$ for self representation. Mindset was coded -1 for difference and $+1$ for similarity. β_{10} denotes the correspondence between self preferences and estimated target preferences (which we take as a measure of projection). β_{20} denotes the correspondence between estimated group preferences and estimated target preferences (which we take as a measure of stereotyping, using the participant's idiosyncratic group representation). β_{11}, β_{21} denote the extent to which the self, and the group, respectively predict target as a function of activated representation (self versus group). β_{12}, β_{22} denote the extent to which the self, and the group, respectively predict target estimates as a function of the manipulated mindset. The critical parameters for our hypotheses are β_{13} and β_{23} , denoting the extent to which self preferences and estimated group preferences correspond to estimated target preferences (i.e., π_{1i}, π_{2i}) as a function of both manipulated variables (activated representation and mindset). Self and group ratings were centered at the mean of each participant's ratings. The method of estimation was restricted maximum likelihood and the covariance matrix was unstructured.

While our prediction involved a three-way interaction of activated representation, mindset, and stereotyping/projection, we first considered other effects. Our results suggested that participants used group preferences ($B = .14, SE = .02, t = 6.82, p < .001$) more than self preferences ($B = .04, SE = .02, t = 1.97, p < .05$) when estimating target preferences, suggesting that stereotyping was generally stronger than projection. In addition, the impact of self ratings on target ratings was influenced by mindset, such that participants projected more in a similarity mindset than in a dissimilarity mindset, $B = .03, SE = .02, t = 1.93, p = .054$.

Turning to our prediction, the relation between self and target ratings (an index of projection) depended on the interaction between activated representation and mindset (the predicted three-way interaction), $B = .04, SE = .01, t = 2.33, p < .05$. This was also the case for the relation between group and target ratings (stereotyping), $B = -.04, SE = .01, t = -2.46, p < .05$.

To probe these interactions, we tested whether self and group ratings predicted target ratings as a function of mindset separately for each activated representation (top of *Fig. 1*). When the group representation was activated, we found a significant interaction between group ratings and mindset, $B = .06, SE = .03, t = 2.01, p < .05$, suggesting that stereotyping was lower in difference than in similarity mindsets (top left in *Fig. 1*), consistent with *Corcoran et al. (2009)* and our expectations. The interaction between self ratings and mindset was not significant, $B = .01, SE = .02, t < 1$.

When self representations were activated, we found a significant interaction, between self ratings and mindset, $B = .07, SE = .03, t = 2.61, p < .01$, suggesting that projection was lower in difference than in similarity mindsets (top right in *Fig. 1*), consistent with our expectations. The interaction between group ratings and mindset was not significant, $B = -.04, SE = .03, t = -1.22, p = .22$. The simple slope

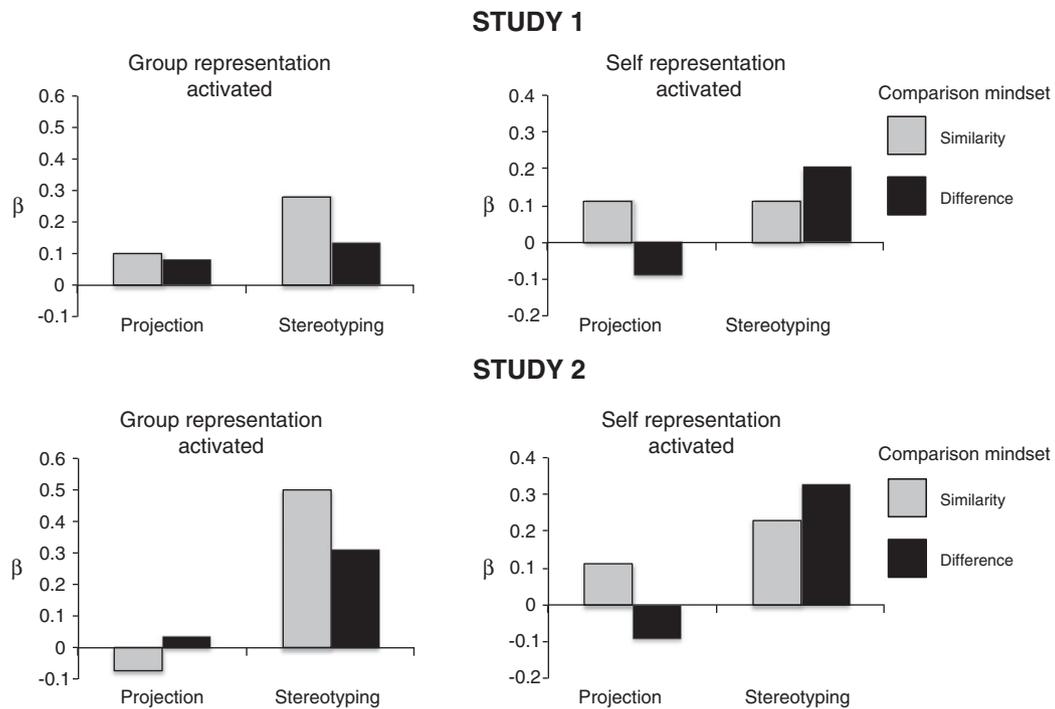


Fig. 1. Standardized betas measuring projection and stereotype by activated representation and mindset, Studies 1 and 2.

effects corresponding to each experimental condition are presented in Table 1. No other effects were significant.

Discussion

Study 1 confirmed our expectations that a difference (versus similarity) mindset would lead to reduced projection when the self was focal and reduced stereotyping when group representations were focal. However, we did not find clear evidence in Study 1 of substitution or shifting between projection and stereotyping as strategies. That is, a difference (versus similarity) mindset did not lead to increased stereotyping when the self was focal nor did it lead to increased projection when the group was focal. Study 1 thus provided partial support for our predictions.

Study 2

In Study 2, we sought evidence that a difference (versus similarity) mindset would lead to both decreased projection and increased stereotyping when the self was focal, as well as increased projection and decreased stereotyping when group representations were focal. It is possible that the “day in a life” manipulation in Study 1 not only activated group representations, but also subtly altered them through perspective-taking, limiting our ability to cleanly capture stereotyping and projection in the group representation activation conditions. For Study 2, we developed a paradigm that attempted to activate self and group representations without inducing perspective-taking by asking participants to design a t-shirt expressing their own beliefs and

Table 1 Simple slopes for projection and stereotyping as a function of activated representation and mindset, Study 1.

Activated representation	Group representation activated						Self representation activated					
	Similarity			Difference			Similarity			Difference		
Mindset	IVs			IVs			IVs			IVs		
DVs	B	SE	t	B	SE	t	B	SE	t	B	SE	t
Projection	.07	.03	2.00*	.04	.04	1	.07	.04	2.07*	-.06	.04	-1.63
Stereotyping	.22	.04	5.56***	.10	.03	2.53***	.08	.04	2.00*	.16	.04	3.73***

* p < .05, *** p < .001.

Table 2

Simple slopes for projection and stereotyping as a function of activated representation and mindset, Study 2.

Activated representation		Group representation activated						Self representation activated					
Mindset		Similarity			Difference			Similarity			Difference		
IVs		<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>	<i>B</i>	<i>SE</i>	<i>t</i>
DVs													
Projection		-.08	.04	-2.18*	.04	.04	1	.07	.04	1.95*	-.03	.04	<1
Stereotyping		.35	.04	8.87***	.24	.03	6.58***	.17	.04	4.59***	.28	.04	7.47***

* $p < .05$, *** $p < .001$.

values or one expressing those of an outgroup. In conjunction, we focused on a more psychologically-distal outgroup (a rival university in the same city) and crossed the gender of targets (e.g., female participants rated male targets) to further heighten psychological distance.

Method

Eighty-seven Columbia University undergraduate students (58 females; average age = 20.59, $SD = 4.66$) took part in a paid study with two parts: first, an online survey featuring ratings for self and group preferences; second, several days later, a lab session gathering estimated preferences for a target individual. In the initial survey, participants rated 18 items for their own preferences and estimated New York University (NYU) students' preferences. Pilot testing revealed that NYU presented a salient outgroup for which our participant population had a shared stereotype (e.g., artsy, independent). As in Study 1, materials included six items consistent with the shared NYU stereotype (e.g., preferring independent films to blockbuster hits), six items inconsistent with the stereotype (e.g., preferring taking a biology class to a film class), and six items for which the shared stereotype was irrelevant (e.g., preferring juice to soda). Items were answered on a five-point scale, as in Study 1.

Several days later, participants attended a lab session and used markers and paper to design a t-shirt that would reflect their own [or NYU students'] values and beliefs, as a manipulation of self or group representation activation. The instructions read, in part:

We would like you to design a t-shirt that reflects yourself [NYU students]. Think about your [the] most cherished beliefs and values [of NYU students], your [their] take on things and what you [they] stand for. Design a t-shirt that represents your [their] values and beliefs as best as possible. ... Use the markers and the template any way you like to develop a t-shirt that really captures who you [NYU students] are.

Participants were given 5 min for this task.

Participants were then randomly assigned to either a difference or similarity mindset task, as in Study 1.

Lastly, participants rated an opposite-gender target (Will/Janet) identified as an NYU student. Participants were provided with the same ambiguous target description as in Study 1 and rated the target's preferences on the 18 items.

Results

We used the same multilevel approach as in Study 1 and first examined other effects in advance of testing our predicted three-way interaction. Overall, participants showed considerable correspondence between estimated target preferences and estimated group preferences ($B = .26$, $SE = .02$, $t = 11.13$, $p < .001$), but not between the target and the self ($B = -.001$, $SE = .02$, $t < 1$), suggesting that stereotyping was generally stronger than projection. Stereotyping was also used more when the activated representation was the group, $B = -.04$, $SE = .02$, $t = -2.13$, $p < .05$.

Consistent with our prediction, the relation between self and target ratings (projection) depended on the interaction between activated representation and mindset (a three-way interaction), $B = .06$, $SE = .02$, $t = 3.27$, $p < .01$. This was also the case for the relation between group and target ratings (stereotyping), $B = -.05$, $SE = .02$, $t = -3.20$, $p < .01$.

We tested whether self and group ratings predicted target ratings as a function of mindset separately for each activated representation. All two-way interactions were significant. When group representations were activated, the interaction between self ratings and mindset, $B = -.06$, $SE = .02$, $t = -2.45$, $p < .05$, indicated that the projection was greater in difference than in similarity mindsets, while the interaction between group ratings and mindset, $B = .05$, $SE = .02$, $t = 2.10$, $p < .05$, indicated that stereotyping was greater in similarity than in difference mindsets (bottom left of Fig. 1).

When self representations were activated, the reverse pattern emerged, as we would predict: the interaction between self ratings and mindset, $B = .05$, $SE = .02$, $t = 2.18$, $p < .05$, suggested that projection was greater in similarity than in difference mindsets, while the interaction between group ratings and mindset, $B = -.06$, $SE = .02$, $t = -2.43$, $p < .05$, indicated that stereotyping was greater in difference than in similarity mindsets (bottom right of Fig. 1). The simple slope effects corresponding to each experimental condition are presented in Table 2. No other effects were significant.

Discussion

Two studies supported the notion that comparison mindsets have differential effects on projection and stereotyping, hinging on what reference point is activated: self or group. When self representations

were activated, a similarity mindset heightened projection compared to a difference mindset. When group representations were activated, a similarity mindset heightened stereotyping. Further, [Study 2](#) employed a novel method for activating representations and showed evidence of substitution between these inferential strategies: when self was activated, similarity mindset led not only to more projection but also to less stereotyping; when group representations were activated, the pattern was reversed, with similarity mindset leading not only to more stereotyping but also to less projection.

These results provide an important qualification to the conclusion offered by [Corcoran et al. \(2009\)](#), who noted that a difference mindset “may be the perfect tool in the cognitive misers’ toolbox ... to undo the unwanted behavioral and judgmental consequences of stereotype activation” (p. 1010). Our results replicated what those scholars found when group representations were focal. But when self representations were made focal in [Study 2](#), the pattern seemed to reverse: a difference mindset led to heightened stereotyping. Thus, while a difference mindset may sometimes mitigate stereotyping, our results demonstrate that it can also have the opposite effect when self representations are focal.

Our results thus suggest that comparison mindsets are not simple tools but double-edged swords, capable of exaggerating or curbing stereotyping and projection depending on what point of reference is focal. We do not view this as inherently good or bad. Stereotyping can be ugly and awful, but can also lead to adaptive and effective social judgment in cases where the content of the group representation is valid and applies to the target. Likewise, projection can be distorted and wrong, but can also lead to adaptive inferences when the self is truly like the target in the domain in question. Our primary concern

here was not to cast perceivers as fools or geniuses, or to demonize or celebrate projection or stereotyping as a route to judgment. Rather, we sought to further unpack the conditions under which perceivers will reach for, or step away from, one tool or another in their social inferences. Our results bring a new twist to the notion that perceivers may rotate between projection and stereotyping (e.g., [Ames, 2004](#)): shifts in social inference strategies may reflect both comparison processes and focal representations.

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References

- Ames, D. R. (2004). Inside the mind reader’s tool kit: Projection and stereotyping in mental state inference. *Journal of Personality and Social Psychology*, *87*, 340.
- Corcoran, K., Hundhammer, T., & Mussweiler, T. (2009). A tool for thought! When comparative thinking reduces stereotyping effects. *Journal of Experimental Social Psychology*, *45*, 1008–1011.
- Forer, B. R. (1949). The fallacy of personal validation: A classroom demonstration of gullibility. *Journal of Abnormal and Social Psychology*, *44*, 118–123.
- Krueger, J. (2000). The projective perception of the social world: A building block of social comparison processes. In J. Suls, & L. Wheeler (Eds.), *Handbook of social comparison: Theory and research* (pp. 323–351). New York: Plenum/Kluwer.
- Mussweiler, T. (2001). “Seek and ye shall find”: Antecedents of assimilation and contrast in social comparison. *European Journal of Social Psychology*, *31*, 499–509.
- Mussweiler, T. (2003). Comparison processes in social judgment: Mechanisms and consequences. *Psychological Review*, *110*, 472–489.
- Otten, S., & Epstude, K. (2006). Overlapping mental representations of self, ingroup and outgroup: Unraveling self-stereotyping and self-anchoring. *Personality and Social Psychology Bulletin*, *32*, 957–969.